

# Notice of Allowability

Application No.

10/806,923

Examiner

Asok K. Sarkar

Applicant(s)

LI ET AL.

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2891

*pm*

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 3/22/2004.
2. ☒ The allowed claim(s) is/are 1-165.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 3/04, 4/04 and 4/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material 11/04
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. Claims 1 – 165 are allowed.
2. The following is an examiner's statement of reasons for allowance:

Claims 1 – 40 recite, inter alia, a method of depositing silicon dioxide by flowing a silanol to the metal deposited on the second surface comprising at least one of silicon and silicon dioxide and to the first surface comprising silicon – nitrogen bonds effective to selectively deposit a silicon dioxide comprising layer over the second surface as compared to the first surface. Gordon, US 2005/0112282 teaches a similar method of selective deposition of silicon dioxide on surfaces comprising at least one of silicon and silicon dioxide, but he fails to teach the selective deposition on surface comprising at least one of silicon and silicon dioxide relative to that of surface comprising silicon – nitrogen bonds. Gordon teaches selective deposition by removing the metal catalysts deposited on the unwanted surface, which the current invention avoids. Additionally, the art of record does not disclose or anticipate the above limitation in combination with other claim elements nor would it be obvious to modify the art of record so as to form a device including the above limitation.

Claims 41 – 62 recite, inter alia, a method of depositing silicon dioxide within a trench by flowing a silanol to the metal deposited on the second surface comprising at least one of silicon and silicon dioxide and to the first surface comprising silicon – nitrogen bonds effective to selectively deposit a silicon dioxide comprising layer over the second surface as compared to the first surface. Gordon, US 2005/0112282 teaches a

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similar method of selective deposition of silicon dioxide on surfaces comprising at least one of silicon and silicon dioxide, but he fails to teach the selective deposition on surface comprising at least one of silicon and silicon dioxide relative to that of surface comprising silicon – nitrogen bonds. Gordon teaches selective deposition by removing the metal catalysts deposited on the unwanted surface, which the current invention avoids. Additionally, the art of record does not disclose or anticipate the above limitation in combination with other claim elements nor would it be obvious to modify the art of record so as to form a device including the above limitation.

Claims 63 – 76 recite, inter alia, a method of depositing silicon dioxide within a trench comprising a second surface comprising at least one of silicon and silicon dioxide and a first surface comprising silicon – nitrogen bonds by selectively depositing the silicon dioxide comprising layer over the second surface as compared to the first surface. Gordon, US 2005/0112282 teaches a similar method of selective deposition of silicon dioxide on surfaces comprising at least one of silicon and silicon dioxide, but he fails to teach the selective deposition on surface comprising at least one of silicon and silicon dioxide relative to that of surface comprising silicon – nitrogen bonds. Gordon teaches selective deposition by removing the metal catalysts deposited on the unwanted surface, which the current invention avoids. Additionally, the art of record does not disclose or anticipate the above limitation in combination with other claim elements nor would it be obvious to modify the art of record so as to form a device including the above limitation.

Claims 77 – 123 recite, inter alia, a method of depositing silicon dioxide by flowing a silicon containing precursor gas on the second surface comprising at least one of silicon and silicon dioxide and the first surface comprising silicon – nitrogen bonds effective to selectively deposit a silicon dioxide comprising layer over the second surface as compared to the first surface. Gordon, US 2005/0112282 teaches a similar method of selective deposition of silicon dioxide on surfaces comprising at least one of silicon and silicon dioxide, but he fails to teach the selective deposition on surface comprising at least one of silicon and silicon dioxide relative to that of surface comprising silicon – nitrogen bonds. Gordon teaches selective deposition by removing the metal catalysts deposited on the unwanted surface, which the current invention avoids. Additionally, the art of record does not disclose or anticipate the above limitation in combination with other claim elements nor would it be obvious to modify the art of record so as to form a device including the above limitation.

Claims 124 – 146 recite, inter alia, a method of forming a bit line over capacitor by depositing silicon dioxide on a second surface comprising at least one of silicon and silicon dioxide and a first surface comprising silicon – nitrogen bonds by selectively depositing the silicon dioxide comprising layer over the second surface as compared to the first surface. Gordon, US 2005/0112282 teaches a similar method of selective deposition of silicon dioxide on surfaces comprising at least one of silicon and silicon dioxide, but he fails to teach the selective deposition on surface comprising at least one of silicon and silicon dioxide relative to that of surface comprising silicon – nitrogen bonds. Gordon teaches selective deposition by removing the metal catalysts deposited

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on the unwanted surface, which the current invention avoids. Additionally, the art of record does not disclose or anticipate the above limitation in combination with other claim elements nor would it be obvious to modify the art of record so as to form a device including the above limitation.

Claims 147 – 165 recite, inter alia, a method of forming a bit line over capacitor by depositing silicon dioxide on a sidewall surface comprising polysilicon and a first surface comprising silicon – nitrogen bonds by selectively depositing the silicon dioxide comprising layer over the polysilicon comprising sidewall relative to the first surface. Gordon, US 2005/0112282 teaches a similar method of selective deposition of silicon dioxide on surfaces comprising at least one of silicon and silicon dioxide, but he fails to teach the selective deposition on surface comprising at least one of silicon and silicon dioxide relative to that of surface comprising silicon – nitrogen bonds. Gordon teaches selective deposition by removing the metal catalysts deposited on the unwanted surface, which the current invention avoids. Additionally, the art of record does not disclose or anticipate the above limitation in combination with other claim elements nor would it be obvious to modify the art of record so as to form a device including the above limitation.

### ***Conclusion***

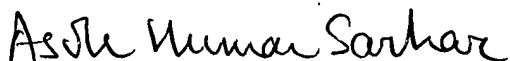
3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asok K. Sarkar whose telephone number is 571 272 1970. The examiner can normally be reached on Monday - Friday (8 AM- 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William B. Baumeister can be reached on 571 272 1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Asok K. Sarkar  
November 3, 2005

Primary Examiner